MAINTENANCE GUIDE

for

Captor™ 4300, 4800, 5400 (LPG, Petrol & Diesel)
CR 1100, 1200, 1400 (LPG, Petrol & Diesel)

AFTER USE

1 Raise the squeegee, the scrub brushes, and the brooms.
2 Shake the dust control filter and empty the hopper.
3 Drain and flush the recovery tank.
4 Flush the vacuum hose and squeegee by opening the recovery tank lid and running water down the pickup tube on the right side of the tank. **SERVICE NOTE:** Tip the recovery tank out and check the squeegee hose elbow below the tank to make sure it has flushed out completely.
5 Remove and clean the squeegee tool.
6 Remove and clean the scrub brushes. Rotate the scrub brushes.
7 Wipe the machine with a damp cloth.
8 Perform all required maintenance before storage.
9 Move the machine to a clean, dry storage area.
10 Store the machine with the brooms, the squeegee and the scrub brushes in the UP position, and the tank covers open so that the tanks can air out.

REPORT ANY DEFECT OR MALFUNCTION NOTED DURING OPERATION TO AUTHORIZED SERVICE OR MAINTENANCE PERSONNEL.

SHUTTING DOWN THE DIESEL / GASOLINE ENGINE

1 Put all controls to the OFF position.
2 Raise the squeegee, the scrub brushes, and the brooms.
3 Push the Engine Speed Switch **(G)** to change to "Idle" speed and let the engine idle for 30 seconds.
4 Apply the Parking Brake **(GG)**.
5 Turn the Key Ignition Switch **(MM)** OFF and remove the key.

SHUTTING DOWN THE PROPANE ENGINE

1 Put all controls to the OFF position.
2 Raise the squeegee, the scrub brushes, and the brooms.
3 Turn the service valve on LP gas tank OFF.
4 Push the Engine Speed Switch **(G)** to change to "Idle" speed and let the engine idle until all the LP gas is dispelled from the line.
5 Apply the Parking Brake **(GG)**.
6 Turn the Key Ignition Switch **(MM)** OFF and remove the key.

MAIN BROOM MAINTENANCE

Since the Main Broom Motor always turns in the same direction, the bristles on the broom eventually become curved, reducing sweeping performance. Sweeping performance can be improved by removing the broom and turning it around (end-for-end). This procedure, known as "rotating" the main broom, should be done once every 30 hours of operation.

The main broom should be replaced when the bristles are worn to a length of 2-1/2 inches (6.35 cm). The main broom stop **(JJ)** must be re-adjusted when the broom is replaced. **NOTE:** Bristle length on a new broom is 3-1/4 inches (8.25cm).

NOTE: The machine should be stored with the Main Broom in the raised position.

⚠ WARNING!

The engine must not be running when performing this procedure.

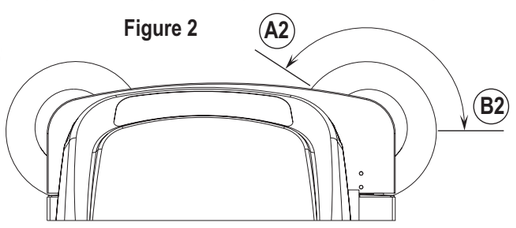
To Rotate or Replace the Main Broom...

1 Turn the Ignition Key Switch **(MM)** OFF.
2 Put the Main Broom Raise / Lower (ON / OFF) Lever **(II)** in the DOWN position.
3 Open the Main Broom Right Access Door **(38)**.
4 **See Figure 1.** Remove the large T-Bolt **(A1)** from the side of the broom idler arm. Pivot the idler arm assembly out of the main broom core.
5 Pull the main broom out of the broom housing and remove any string or wire wrapped around it. Also inspect the skirts at the front, back and sides of the broom housing. The skirts should be replaced or adjusted if they are torn or worn to a height of more than 1/4 inch (6.35 mm) off the ground.
6 Turn the broom around (end-for-end) and slide it back into the broom housing. Make sure that the Lugs **(B1)** on the broom drive hub (left side of machine) engage the slots in the broom core.
7 Swing the idler arm assembly back into the broom core and re-install the T-Bolt that holds the idler arm in place.
8 Close and latch the Main Broom Right Access Door **(38)**.

To Adjust the Main Broom Height...

1 Drive the machine to an area with a level floor and set the parking brake **(GG)**.
2 Pull the Main Broom Raise / Lower (ON/OFF) Lever **(II)** back and slide to the right and up to lower the main broom. Push lightly on the front of the Drive Pedal **(OO)** to start the main broom rotating. DO NOT move the machine.
3 Let the main broom run in place for 1 minute. This allows the broom to polish a "strip" on the floor. After 1 minute, raise the broom, release the parking brake and move the machine so that the polished strip is visible.
4 Inspect the polished strip on the floor. If the strip is less than 2 inches (5.08 cm) or more than 3 inches (7.62cm) wide, the broom needs to be adjusted.
5 To adjust, loosen the Main Broom Adjust Knob **(JJ)** and slide forward or backward to lower or raise the Main Broom. The farther the Knob **(JJ)** travels up in the slot, the lower the Main Broom will be. Tighten Knob **(JJ)** after adjustment is complete.
6 Repeat steps 1-5 until the polished strip is 2-3 inches (5.08-7.62cm) wide.
The width of the polished strip should be the same at both ends of the broom. If the strip is tapered, move the machine to a different area and repeat steps 1-5. If the polished strip is still tapered, contact your Nilfisk-Advance Dealer for service.

Figure 2



SIDE BROOM MAINTENANCE

The side broom(s) move dirt and debris away from walls or curbs and into the path of the main broom. Adjust the side broom so that the bristles are contacting the floor from the 10 O'clock **(A2)** to the 3 O'clock **(B2)** area shown in figure 5 when the broom is down and running.

To adjust the Side Broom...

1 The side broom(s) are adjusted simply by pressing and holding the Side Broom DOWN/ON Switch **(N)** or the Side Broom UP/OFF Switch **(Y)** until the desired amount of bristles are contacting the floor.

NOTE: The machine should be stored with the Side Broom(s) in the raised position. The Side Broom(s) should be replaced when the bristles are worn to a length of 3 inches (7.62 cm) or they become ineffective.

To replace the Side Broom...

1 Raise the Side Broom(s).
2 Reach under the Side Broom and remove the large Thumb-Nut holding the side broom on and remove the broom and plastic disc.
3 Install the new broom and plastic disc by aligning the three alignment pins and pushing on. Re-install the Thumb-Nut and tighten.

Nilfisk Advance
setting standards

MAINTENANCE SCHEDULE

Keep the machine in top condition by following the maintenance schedule closely. Maintenance intervals given are for average operating conditions. **Machines used in severe environments may require service more often.**

MAINTENANCE ITEM	PERFORM DAILY
Perform the "After Use" maintenance steps	X
Check parking brake	X
Check engine oil	X
*Clean main and side brooms	X
Check filter indicator and lights (hyd & air)	X
Check engine coolant level	X
Check hydraulic oil level	X

MAINTENANCE ITEM	15 hrs.	30 hrs.	150 hrs.	300 hrs.	500 hrs.	1000 hrs.
*Rotate main broom	X					
Clean solution filter	X					
*Inspect/adjust brooms		X				
*Clean hopper filter		X	X	X		
*Inspect broom housing skirts		X				
*Inspect hopper seals		X				
Clean radiator and oil cooler		X				
Perform engine maintenance			X			
*Inspect and grease steering rack			X			
Change the hydraulic "charge" oil filter						X
Change reservoir hydraulic oil and filter						X
Flush the radiator						X
Engine fuel filter(s) gas or propane						X

*See the Mechanical Repair Service Manual and Operator Manual for detailed maintenance information of systems listed. (Sweeping, Hopper, Steering, Dust Control, Squeegee)

⚠ WARNING!

Turn the key switch off, set the parking brake and disconnect the battery before servicing the machine.

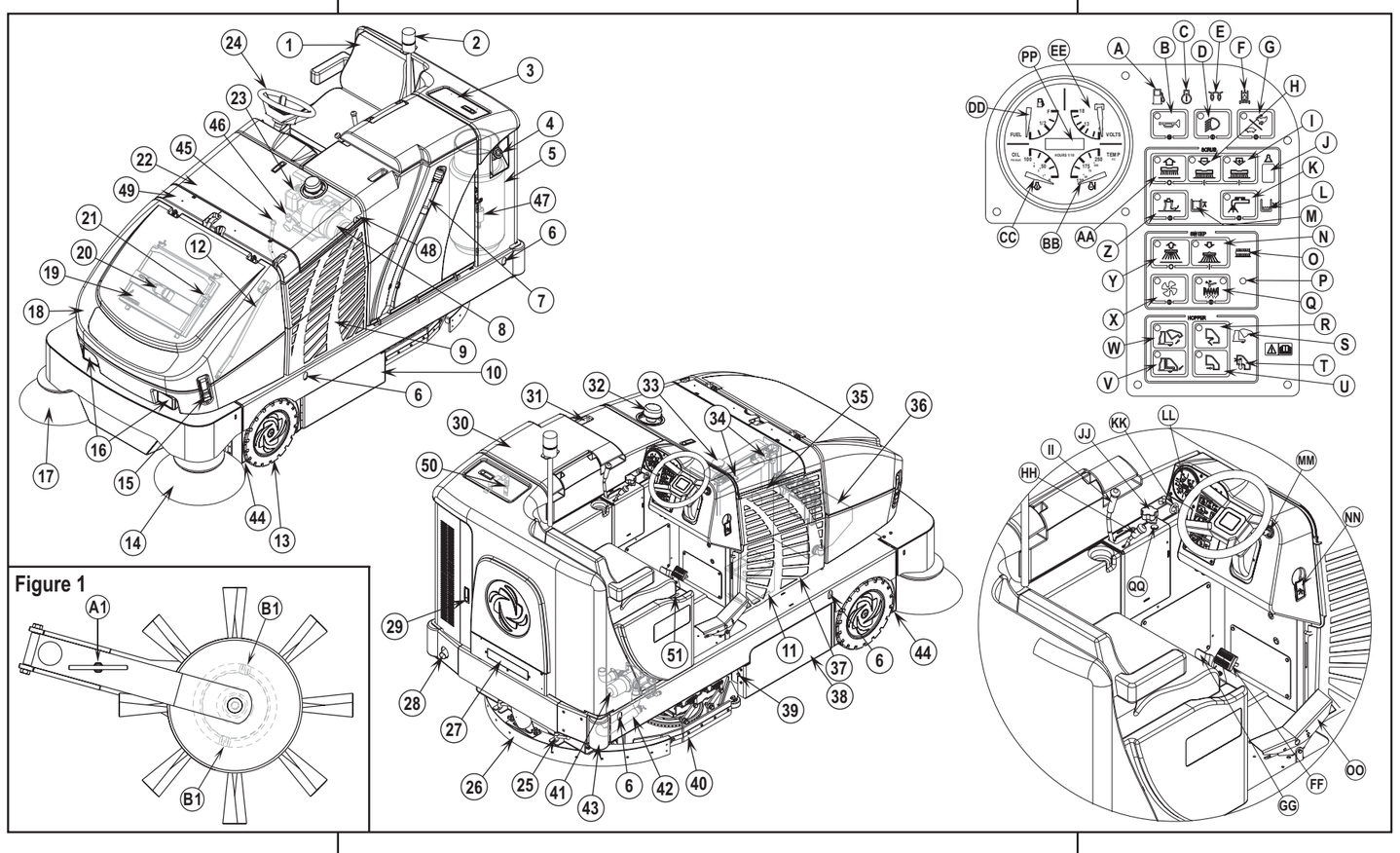


Figure 1

HYDRAULIC OIL

⚠ WARNING!

To avoid hydraulic oil injection or injury, always wear appropriate clothing and eye protection when working with or near hydraulic system.

Check the Hydraulic Oil Level. Remove the Right Engine Access Panel **(37)** and look at the gauge on the side of the reservoir. If the oil level is below the minimum level, add 10W30 motor oil until the gauge is 3/4 full. Do not fill above maximum. Change the oil if major contamination from a mechanical failure occurs. **SERVICE NOTE:** Remove the small access panel **(49)** directly above the reservoir to add oil. This panel is held on by (2) wing nuts on the underside of the panel. Only filtered oil should be added.

⚠ IMPORTANT!

This machine is equipped with an indicator light which lights if the "In Tank" oil filter requires changing. Remove filter element from the filter cup and replace with new filter. Hydraulic filter is found on top of the Hydraulic Reservoir **(36)**.

Change the Hydraulic "Charge" Oil Filter **(35)**.
Note: Oil should be warm, cold oil is thicker and may cause the light to come on intermittently until it warms up.

ENGINE COOLANT

Lift the Engine Cover **(22)** and observe the coolant level in the Coolant Recovery Tank **(23)**. If the level is low, add a mixture of half water and half automotive type anti-freeze.

⚠ CAUTION!

Do not remove the radiator cap when the engine is hot.

LUBRICATING THE MACHINE

Steering Rack

Once every 150 hours pump a small amount of grease onto the steering rack and pinion components.

Also every 150 hours apply light machine oil to maintain free movement of all general pivot points. Example the seat, and broom door hinges etc. Broom, squeegee and hopper pivots use composite bearings lubrication is not required.

⚠ WARNING

For the protection of the environment; when servicing any of the machine's lubrication fluids they must be disposed of safely in accordance with your local environmental regulations (recycling). Examples of machine lubrication products: **(Engine crankcase oil, Engine crankcase oil filter, Hydraulic system oil, Hydraulic system oil filters).**

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KNOW YOUR MACHINE

1 Operator's Seat
2 Strobe Light (optional)
3 Solution Tank Fill
4 Gasoline Tank Cap
5 Fuel Tank
6 Tie Down Locations
7 Recovery Tank Drain Hose
8 Engine Air Filter
9 Left Engine Compartment Access Panel
10 Main Broom Left Access Door
11 Battery
12 Hopper Lid Prop Rod
13 Front Wheel
14 Left Side Broom
15 Hopper Lid Latch
16 Headlights
17 Right Side Broom
18 Hopper Cover
19 Dust Control Filter
20 Dust Control Shaker Assembly
21 Shaker Assembly Latch
22 Engine Compartment Door
23 Coolant Recovery Tank
24 Steering Wheel
25 Squeegee Handle
26 Squeegee Tool Assembly
27 Tail Light
28 Exhaust Tail Pipe
29 Fuel Tank Compartment Door
30 Recovery Tank Lid

KNOW YOUR MACHINE (CONTINUED)

31 Recovery Tank "Tip-Out" Grip
32 Engine Air Filter Hood
33 Radiator Cap
34 Oil Cooler "Tip-Out" Latches
35 Hydraulic "Charge" Oil Filter
36 Hydraulic Reservoir / In Tank Return Oil Filter
37 Right Engine Compartment Access Panel
38 Main Broom Right Access Door
39 Access Door Latch
40 Skirt Assembly
41 Inline Solution Filter
42 Solution Tank Drain Hose
43 Rear Roller Bumper
44 Jacking Location
45 Engine Oil Dipstick
46 Air Filter Service Indicator
47 Fuel Filter (Gas Models)
48 Recovery Tank Latch
49 Hydraulic Reservoir Access Panel
50 Water Level Gauge
51 Operator Seat Adjustment Lever

OPERATOR'S COMPARTMENT

A Low Fuel Indicator (LP)
B Horn Switch
C Engine Service Indicator (triggered by ECU)
D Headlight Switch
E Glow Plug Indicator (Diesel / Release key after indicator turns OFF)
F Hydraulic Filter Plugged Indicator
G Engine Speed Switch
H Scrub Pressure Decrease Switch
I Scrub Pressure Increase Switch
J Scrub Pressure Display
K Solution Switch
L Solution Tank Empty Indicator
M Recovery Tank Full Indicator
N Side Broom DOWN/ON Switch
O Main Broom ON Indicator
P Light Sensor
Q Shaker Switch
* Dust Filter Plugged Indicator (right)
R Open Dump Door Switch
S Hopper Open Indicator
T Hopper Overtemp Indicator
U Close Dump Door Switch
V Lower Hopper Switch
W Raise Hopper Switch
X Dust Control Switch
Y Side Broom UP/OFF Switch
Z Vacuum System Switch
AA Scrub System OFF Switch
BB Coolant Temperature Gauge
CC Oil Pressure Gauge
DD Fuel Gauge (Gas / Diesel)
EE Voltmeter
FF Brake Pedal
GG Parking Brake Latch
HH Solution Flow Control Lever
II Main Broom Raise/Lower (ON/OFF) Lever
JJ Main Broom Adjust Knob
KK Hopper Safety Support Lever
LL Control Panel
MM Ignition Switch
NN Tilt Wheel Lever
OO Drive Pedal
PP Hour meter
QQ Main Broom Overload Indicator Light

ROUTINE ENGINE MAINTENANCE

- Keep the fuel tank filled. This helps to reduce condensation and moisture entering the fuel system (gasoline & diesel).
- Repair any oil or coolant leaks immediately.
- Check condition of battery (water level) and cables weekly.
- Observe the engine coolant temperature gauge frequently.
- Observe the engine oil pressure gauge frequently.
- Check the voltmeter and charging system.

ENGINE MAINTENANCE (150 HOURS)

At 150 hour intervals it is recommended that the following service be performed: Change oil and filter, clean and inspect spark plugs, check all engine belts condition and adjustment, check battery charge and level, check cooling system hoses and clamps, check engine air cleaner filter and hoses, and check general condition and performance of engine.
Note: Reference the separately supplied PSI GM Power Train Products Operation and Maintenance manual for more detailed service data. PSI manual number is 3610000.

TOWING OR PUSHING A DISABLED MACHINE

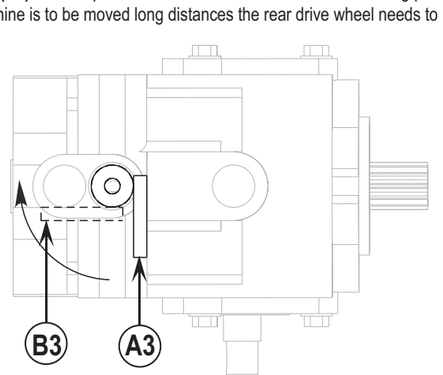
⚠ CAUTION!

The machine's drive propelling pump is manufactured with an adjustable tow valve. This valve prevents damage to the hydraulic system when the machine is being towed/pushed short distances without use of the engine.

To access the valve, open the Engine Compartment Door **(22)** and lift off the Right Engine Compartment Access Panel **(37)**. Locate the valve as shown on the underside of the hydrostatic pump by reaching under the radiator. Turn the valve 90 degrees; this disengages the hydrostatic lock between the motor and pump.

The hydrostatic pump can be damaged if the machine is towed with the valve in the normal working position **(A3)**. Reference the illustration below for the normal working setting **(A3)** and the free wheeling towing setting **(B3)**. Note: If the tow valve is left in free wheeling **(B3)** position the hydrostatic pump can't drive the machine FWD or REV. No damage will result, just re-set valve to the normal working setting **(A3)**. Tow or push machine no faster than a normal walking pace (2-3 miles per hour) and for short distances only. If the machine is to be moved long distances the rear drive wheel needs to be raised off the floor and placed on a suitable transport dolly.

Figure 3



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